The Influence of Landslides Parameters Contributing to Runout Zones using GIS-Based Empirical Model in Kundasang, Sabah

ABSTRACT

The study of runout area of landslide enabled us to obtain a spatial prediction for landslides, which could contribute as the basic for the hazard assessment study. This study assesses the influence of terrain parameters that contribute to runout zones using GIS based empirical model in Kundasang, Sabah. The landslide inventories were obtained at 1:12 000 scales based on interpretation of aerial photographs to identify landslide distributions in three assessment years; 1984, 2009 and 2012. The runout zones were distinguished from the areas within the reach of the mobilized deposits. To estimate the areas that could be affected by the path or deposition of the mobilized materials, a Digital Elevation Model (DEM) with 20m×20m pixel size was used in the study area. We considered the fact that under intense rainfall events deposits from a landslide tend to travel long distances following the maximum slope and merge with a drainage network. This paper focus on the possible runout flow path distance and affected areas using the TauDEM extension for ArcGIS software starting from the source area to predict deposit area. Parameters such as lithology, soil series and land use influence the runout of landslides, and the transportability of runout flow depends on terrain parameter such as slope angle.